REPORT TO THE LEGISLATURE
STATE OF HAWAII
2006 REGULAR SESSION

# IMPLEMENTATION OF CHAPTER 190D, HAWAII REVISED STATUTES OCEAN AND SUBMERGED LANDS LEASING

PREPARED BY:
DEPARTMENT OF LAND AND NATURAL RESOURCES
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IN RESPONSE TO SECTION 12 OF ACT 176, SESSION LAWS OF HAWAII 1999

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## 1.0 Introduction

Act 176, Session Laws of Hawaii (SLH) 1999, went into effect on July 1, 1999, allowing greater utilization of Hawaii's ocean resources for research and sustainable commercial development of open ocean aquaculture. In addition, the law requires the Department of Land and Natural Resources (DLNR), in cooperation with the Department of Agriculture (DOA), to submit a progress report to the Legislature on the implementation prior to each regular legislative session. This Report, the seventh in the series, addresses the progress with implementing ocean leasing, as well as, highlights of related national activities in 2005.

## 2.0 National Activities

### 2.1 United States (US) Commission on Ocean Policy, Follow Up

The U.S. Commission on Ocean Policy was established by Congress under the Oceans at 2000 (Public Law 106-256) to comprehensive review and assesses America's ocean policy. After several years of study, which included 16 public meetings (including Hawaii) and 18 site visits around the country, the Commission delivered its 610-page report to the President and the Congress in September 2004. The final report had been reviewed by 37 state governors, five tribal leaders, and 800 interested stakeholders and other technical experts, and contained 212 recommendations.

Marine aquaculture was covered in one of the 31 chapters of the report. It was noted that, "marine aquaculture has the potential to supply a significant part of the ever increasing domestic and global demand for seafood. However, two major concerns must be addressed: environmental problems associated with some aquaculture operations, particularly net-pen facilities, and a confusing, inconsistent array of state and federal regulations that hinder private sector investment (U.S. Commission on Ocean Policy, 2004)."

To further marine aquaculture development in the U.S., the Commission recommended the following:

1. Congress should amend the National Aquaculture Act to create an Office of Sustainable Marine Aquaculture in the National Oceanic and Atmospheric Administration (NOAA) and designate NOAA as the lead federal agency for implementing a national policy for environmentally and economically sustainable marine aquaculture.

2. Congress should increase support for expanded marine aquaculture research, development, training, extension, and technology transfer programs in the NOAA. NOAA's new Office of Sustainable Marine Aquaculture should set priorities for the research and technology programs, in close collaboration with academic, business, and other stakeholders.

3. NOAA's new Office of Sustainable Marine Aquaculture should be responsible for developing a comprehensive, environmentally sound permitting, leasing, and regulatory program for marine aquaculture.

4. The U.S. should work with the United Nations Food and Agriculture Organization (UNFAO) to encourage and facilitate worldwide adherence to the aquaculture provisions of the Code of Conduct for Responsible Fisheries (U.S. Commission of Ocean Policy, 2004).

The proactive report also suggested that through the new Office of Sustainable Marine Aquaculture, NOAA should develop a single, multi-agency federal permitting process for the aquaculture in the Exclusive Economic Zone (EEZ) that ensures that aquaculture facilities meet all applicable environmental standards and protects the sustainability and diversity of wild stocks. Additional investments in research, demonstration projects, and technical assistance will help the industry address environmental issues, conduct risk assessments, develop improved technology, select appropriate species, and create best management practices.

Many recommendations of the U.S. Commission on Ocean Policy directly related to Hawaii, its ocean environment and the management issues the State is facing. In response, DLNR coordinated formation of the Hawaii Ocean and Coastal Council (HOCC) in 2005. The purpose of the HOCC is to create a forum for different governmental entities to meet and discuss common and overlapping ocean and coastal issues. It is anticipated this structure will help provide the institutional framework for leadership and coordination to proactively address Hawaii's ocean and coastal concerns.

Among the first tasks being undertaken under the guidance of HOCC is the updating of the Hawaii Ocean Resources Management Plan; first published in 1991 and reviewed and updated in 1998. A comprehensive planning process being coordinated by the Office of Planning of the Department of Business, Economic Development and Tourism is being used to identify issues and includes strong emphasis on input from a variety of stakeholders. A workshop with invitees from interested agencies, businesses and the general public was held on October 26, 2005, to "flesh out" the elements of a new plan. Aquaculture, both traditional fishpond systems and the new, innovative offshore cage culture systems, was one of 12 topic areas for discussion.

## 2.2 Federal Legislation for Federal Waters

Recent reviews of the regulatory situation governing leasing of federal marine waters (three miles to 200 miles offshore) for commercial aquaculture have indicated no clear, formal permitting or leasing process exists (Cicin-Sain et al., 2001 and Cicin-Sain et al., 2005). This situation was confirmed by the 2004 report of the U.S. Commission on Ocean Policy, which noted the lack of a regulatory framework to support offshore aquaculture development and recommended among other things that NOAA develop a comprehensive, environmentally sound permitting, leasing and regulatory program for marine aquaculture (U.S. Commission on Ocean Policy, 2004).

As other nations (e.g., Norway, Ireland, Scotland, Australia, Chile and Canada) aggressively begin moving aquaculture activities offshore and into the open ocean, the lack of a regulatory framework in the U.S. becomes glaring. In response to this growing gap, the U.S. Department of Commerce (DOC) has become more proactive in addressing marine aquaculture development issues, for example:

- DOC developed a long-term policy for expansion of the marine aquaculture industry, with objectives that seek to: a) Increase the value of domestic aquaculture production from the present $900 million annually to $5 billion annually; b) Increase the number of jobs in aquaculture from the present estimate of 180,000 to 600,000; c) Develop aquaculture technologies and methods both to improve production and safeguard the environment, emphasizing where possible those technologies that employ pollution prevention; d) Double the value of non-food products and services produced by aquaculture in order to increase industry diversification; e) Enhance depleted wild fish stocks through aquaculture, thereby increasing the value of both commercial and recreational landings; and f) Increase exports of U.S. aquaculture goods and services from the present value of $500 million annually to $2.5 billion annually (U.S. DOC, 1999).

- DOC developed a Code of Conduct for Responsible Aquaculture modeled after UNFAO Code of Conduct for Responsible Fisheries, to comprehensively guide the establishment of the offshore aquaculture industry in the U.S. (NOAA, 2003).

- DOC has developed a marine aquaculture research plan to address fundamental issues such as basic culture technology, pilot projects, environmental concerns, etc. It has been proposed that this expanded research effort should be conducted through in-house NOAA laboratories and public-private partnerships.

The most recent effort by NOAA directly addressed the institutional and regulatory constraints to offshore aquaculture by drafting the National Offshore Aquaculture Act, sent to Congress by the President, on June 7, 2005. NOAA officials have indicated the landmark aquaculture legislation, which implements the recommendations of the U.S. Ocean Commission on Ocean Policy, addresses the following:

- Gives DOC authority to issue offshore aquaculture permits. This authority would allow issuance of site permits and operating permits. Furthermore, it would include exemptions of offshore aquaculture from the Magnuson-Stevens Fishery Conservation and Management Act and the ability to streamline the permit process.

- Provides environmental and other safeguards. The Act would specifically address: environmental requirements; permit monitoring, evaluation and enforcement; authority to suspend, modify and revoke permits; bonds or other financial guarantees; and necessary consultations with federal agencies, states, tribes, etc.

- Supports development of offshore aquaculture. The Act would encourage research and development industry partnerships and biological, social, production, and economic data collection.

- Provides funding via fees and annual appropriations. The legislation would establish an offshore aquaculture revolving fund to collect lease fees for activities to support development. The legislation would also authorize unspecified dollar amounts to support development (Chavas, 2004).

In a press release accompanying the delivery of the proposed legislation to Congress, NOAA states:

"The bill grants the Secretary of Commerce authority to issue permits for marine aquaculture operations in federal waters, which cover about 3.4 million square miles from three to 200 miles off the coasts of the United States.

'Today's action will create jobs and revenues for coastal communities and U.S. businesses by allowing for the expansion of an underutilized industry,' said Commerce Secretary Carlos M. Gutierrez. 'This legislation fulfills a promise President Bush made to the American people in his Ocean Action Plan, and we urge Congress to take action in support of this bill.'

Currently, the United States does not have a regulatory structure in place to allow aquaculture operations in federal marine waters. While other countries have continued to develop aquaculture, the United States has fallen behind – resulting in a swelling seafood trade deficit as Americans increasingly reply on the supply of imported, farmed seafood products to meet the domestic market demand.

'Our goal is to develop a sustainable aquaculture program that balances the needs of fishermen, coastal residents and visitors, seafood consumers, the environment, and the aquaculture industry,' said retired Navy Vice Adm. Conrad C. Lautenbacher, Jr., Ph.D., under secretary of commerce for oceans and atmosphere and NOAA administrator. 'Today's announcement starts a public process through which all our stakeholders and constituents will have an opportunity to provide guidance as we begin developing the guidelines and regulations for offshore aquaculture ventures.'

Seafood is a critical source of protein globally, and the USDA recommends that Americans eat at least two servings per week for a heart-healthy diet. Projections are that global seafood demand will more than triple by 2025. Since wild-caught fisheries will not be able to meet future market demand, the increase in global seafood supply will most likely come from aquaculture – either imported or domestically produced. The U.S. imports over 70 percent of the seafood that Americans eat, and at least 40 percent is farmed overseas. With the seafood trade deficit of $8B and increased demand for seafood in the United States, this bill will allow for the growth of a sustainable U.S. offshore aquaculture industry."

The overall purpose of this Act is to provide the necessary authorities to the Secretary of Commerce for the establishment and implementation of a regulatory system for offshore aquaculture in the U.S. EEZ. Specifically, the Act:

- Authorizes the Secretary of Commerce to issue offshore aquaculture permits and to establish environmental requirements where existing requirements under current law are inadequate.

- Exempts permitted offshore aquaculture from provisions of the Magnuson-Stevens Fishery Conservation and Management Act.

- Authorizes the establishment of a research and development program in support of offshore aquaculture.

- Requires the Secretary of Commerce to work with other federal agencies to develop and implement a streamlined and coordinated permitting process for aquaculture in the EEZ.

- Authorizes to be appropriated "such sums as may be necessary" to carry out this Act.

- Provides for enforcement of the Act.

Implementation of this Act is expected to create an enabling environment for the offshore aquaculture industry in the U. S. in two ways: 1) Providing for the establishment of an efficient regulatory process; and 2) Providing for a research program specifically dedicated to the development of environmentally responsible offshore aquaculture technologies.

Development of the offshore segment of the U.S. aquaculture industry has been deemed essential by the (current) Bush Administration to rising domestically produced seafood levels. Assuming current per capita consumption of about 16 pounds per person per year and current population projections, the U.S. will need an additional 2 million metric tons per year by 2025. If the public doubles the current consumption levels, as recommended by nutritionists, the U.S. will need an additional 4 to 6 million metric tons per year over current levels. Presently, 70percent of U.S. seafood is imported, leading to an $8B trade deficit and dependency on foreign sources for this important dietary item and

contribution to U.S. food security. Support in raising in the Administration and Congress to increase domestic seafood supplies through offshore aquaculture development and move away from U.S. reliance on foreign imports.

## 3.0 Hawaii Commercial Developments

### 3.1 Status of Existing Leases

#### 3.1.1 Cates International Inc.

Cates International Inc. (CII) was formed in 1999 to pursue commercial open ocean aquaculture in state marine waters. The principals had considerable experience with commercial fishing, diving, boating services, and salvage, as well as business. On April 10, 2000, CII submitted all its federal, state and county permits for a four-cage project using 28 acres of ocean two miles off Ewa Beach, Oahu to grow moi or the Pacific threadfin (Cates et al., 2001).

On March 9, 2001, approximately 12 months after DLNR accepted the application, the Board of Land and Natural Resources (BLNR) authorized a lease, the first open ocean aquaculture lease in the Nation (Sea Technology, 2001). Since the lease approval, CII has deployed and operated four Sea Station 3000 submersible cages. Production has been somewhat inconsistent in 2005 due to difficulties with hatchery production of enough fingerlings to stock the cages. The majority of fish sold by CII were consumed by local markets, including many fine dining, "white table cloth" restaurants around Honolulu.

While 2005 was marked by continued progress for CII, continued expansion was not without its challenges. CII has put its plans to launch a second site on hold, to concentrate on finding a suitable land site for a large-scale hatchery to support the offshore farm with sufficient supplies of fingerlings to optimally operate the cages. A site in Ewa Beach, Oahu on state lease land managed by DOA has been identified, and construction is proceeding. However, support locations at reasonable cost that are at or near commercial harbors continue to be difficult to find for Hawaii's offshore aquaculture industry.

It is notable that the President of CII was invited to Washington, D.C. to participate in ceremonies surrounding the unveiling of the National Offshore Aquaculture Act in June of 2005. CII and Hawaii were singled out for their achievements in pioneering the first commercial open ocean aquaculture lease in the nation and the environmentally sustainable manner the farm is being managed.

#### 3.1.2 Black Pearls Inc.

The second pioneering company involved in offshore aquaculture development is Black Pearls Inc. (BPI) of Kailua-Kona, Hawaii. It is a cutting-edge research and development company that consults in pearl oyster hatchery development and develops commercial pearl farms around the World. Pearl oysters are grown using hanging culture techniques,

where oysters seeded with pearl forming nuclei are hung in baskets from lines supported by buoys, and utilize natural ocean productivity as food. Of particular interest to marine resource managers at DLNR, BPI's native cultured pearl oysters would naturally spawn re-seed and increase depleted wild stocks of oysters at no cost to the State.

On October 5, 2000, BPI submitted all its federal, state and county permits for a 75 acre site in the borrow pit off the Reef Runway at the Honolulu International Airport. On August 24, 2001, approximately 11 months after DLNR accepted the application, a lease was authorized by BLNR and BPI became the second lease authorized under the amended Chapter 190D, Hawaii Revised Statutes (HRS), the Ocean and Submerged Lands Leasing Law. However, prior to execution of the final lease, as a condition of the approval, an administrative rule change is necessary to remove the 75-acre site from a state designated 700-acre thrillcraft area off the Airport.

In 2005, the BPI pearl project still needs an administrative rule change through action by the DLNR's Division of Boating and Ocean Recreation. However, BPI put this project on hold and focused its energies on securing and developing a lease for open ocean cage culture of fish off Kailua-Kona, Hawaii. The status of that project is described next.

### 3.1.3 Kona Blue Water Farms

Kona Blue Water Farms (KBWF) was formed to implement open ocean cage culture of the kahala or amberjack. Hatchery techniques have been developed by KBWF through a $1.5M federal grant from the Advanced Technology Program, DOC. Plans were to produce stocking fingerlings at the Kona hatchery and grow them out at an ocean cage site not too far from the land-based facility (Pacific Business News, 2001). Other hatchery technologies for other economically important species were also being researched at the KBWF hatchery, located within the Natural Energy Laboratory of Hawaii Authority (NELHA).

KBWF submitted their state and federal permits separately, with the state applications going in for an 81-acre site on November 2002 and approval for a lease by BLNR occurring November 5, 2003. Federal permit approvals from the U.S. Army Corps of Engineers were obtained on May 2004.

As 2004 came to a close, KBWF announced they had secured $4 million in investment to build the open ocean cage farm (Star Bulletin 10/23/04). Aspen, Colorado-based Cornerstone Holdings is involved in real estate development, venture capital and portfolio management, including projects on Kauai. Cornerstone Holdings President, Tom McCloskey, was the former head of Horizon Organic Dairy, the World's largest organic dairy and he has been a long-time advocate of sustainable agriculture and aquaculture.

In 2005, KBWF leaped ahead by deploying two submerged production cages and two small surface nursery cages at its site off Kailua-Kona. Cages were stocked with amberjack fingerlings from the Company's hatchery at NELHA. Harvesting began on

September 1st and sales, under the Company's trade name "Kona Kampachi," have targeted both local and export markets. Product acceptance has been excellent.

The Company plans to add four more cages in the near future. When these six cages are being optimally harvested, the Company expects to be producing 35,000 pounds of fish per week (Youn, 2005). In recognition of these sterling achievements, Governor Linda Lingle declared by proclamation, September 27th as Kona Kampachi Day.

### 3.2 New Interest and Progress

#### 3.2.1 Pacific Ocean Ventures

Pacific Ocean Ventures (POV) is a local company formed to pursue open ocean cage farming of moi and kahala. The Company actively searched for a site around the State for more than two years and focused on a location off Maui. Extensive environmental assessment (EA) work was done at this site in preparation for writing a draft environmental assessment. Technology to be deployed is similar to CIII, namely eight submerged cages that will be operated totally submerged.

At the end of 2004, POV submitted its Conservation District Use Application (CDUA) and draft EA to DLNR to start the permit process. DLNR did not accept the initial submittal and indicated more information was needed on ecosystem impacts and marine mammal impacts, mainly concerns over interaction with humpback whales. The site off Maui is located in the Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS), which was established in 1992 (NOAA, 2002).

POV made a presentation to the HIHWNMS' private/public advisory council, Sanctuary Advisory Council (SAC), to receive input on the project. At that meeting, held May 12, 2005, the SAC referred the matter to its Science and Conservation Committees for review and reporting at the next SAC meeting. At a second meeting of the SAC, held September 8, 2005, the findings of the joint committee was discussed. However, no formal action was taken by the SAC at that time due to lack of a quorum. The preliminary report from the Committees noted several concerns for discussion: 1) Displacement of whales from habitat by the cages; 2) Attraction of predators such as sharks; 3) Collision of mating whales with the cages; 4) Interaction of young whales with the cages; and 5) Noise pollution from the work on the cages.

At this writing, POV is considering how best to respond to these issues and waiting for formal action by theSAC. Meanwhile, it has constructed a prototype hatchery at NELHA and has successfully cultured moi fingerlings. POV is also considering other less desirable sites, considering the difficulties being encountered with the proposed Maui site. Interactions and community discussions about the project and its goals continue.

Experience to date with Hawaii's first offshore lease, which is not in the HIHWNMS, indicates whales and dolphins do not appear to be attracted to cages. The tentative approach to this issue, worked out in concert with responsible agencies, is to closely

monitor and report interactions with the cages, according to a monitoring plan developed in cooperation with federal and state management agencies. The Kona Blue Water Farms project, which is located in the HIHWNMS, followed this approach and is monitoring and reporting any whale interactions to DLNR. In this way, it is believed all stakeholders will systematically learn to what extent offshore farming is in conflict with humpback whale movements and adjustments can be made.

## 4.0 Conclusion

Chapter 190D, HRS, was amended by the Legislature and signed into law in July of 1999, to allow Hawaii to test open ocean aquaculture leasing and significant progress has been made in the ensuing six and one half years. Shortly after the changes were signed into law, a coalition of the University of Hawaii Sea Grant Program, the Oceanic Institute and the State Aquaculture Development Program of DOA carried out a highly successful, multi-year cage culture demonstration project, Hawaii Offshore Aquaculture Research Project (HOARP), off Ewa Beach, Oahu. While this experiment was going on, two pioneering companies, CII and BPI, came forward and submitted the first commercial lease applications under the new law. Currently, three leases have been authorized and one company is working on revising a permit application for submittal.

DLNR has actively worked with DOA, to clarify the regulatory and leasing process to move aquaculture offshore in environmentally and economically sustainable ways. Moreover, the agencies have emphasized close environmental monitoring so that decision-makers and the public have the information to evaluate the impacts of ocean leasing for aquaculture, as a long-term, sustainable industry for Hawaii.

As more projects come forward, ADP, the State aquaculture lead agency, will continue to play the role of the facilitator for discussions between companies requesting leases and the regulatory agencies. ADP also assists companies in completing and packaging permit applications, e.g., holding initial permit scoping meetings with concerned agencies. In the future, ADP hopes to have a Geographic Information System-based ocean mapping system to assist projects in selecting the least problematic sites around the Islands (Young et al., 2003).

The Office of Conservation and Coastal Lands of DLNR (OCCL/DLNR) is the responsible agency for determining environmentally acceptable resource uses and the conditions for granting the CDUA permit. The Land Division of DLNR is the agency that issues and administers ocean leases. Ultimately, BLNR decides on the issuance of the specific CDUA permit and lease on a project-by-project basis, balancing environmental concerns with economic development benefits.

The State Department of Health, Clean Water Branch (CWB) also plays a key role in offshore development by virtue of its authority to regulate effluent discharges from cages. Ocean cages are considered point source discharges and farms that grow in excess of 100,000 pounds of product a year require a National Pollution Discharge Elimination System permit from CWB. CWB cooperatively works with individual open ocean

aquaculture projects to formulate workable monitoring and reporting conditions for this new ocean use.

In terms of the federal role, the U.S. Army Corps of Engineers' permitting process also determines how and where cages can be anchored in state marine waters. Further, the Corps currently is the main permitting agency for federal marine waters, i.e., the U.S. EEZ, three miles to 200 miles from shore. Presently, there is no federal leasing regime for the EEZ, however as discussed previously, NOAA has submitted leasing legislation to Congress in June of 2005. A hearing on this bill is expected before the end of the year.

Internationally and nationally, the realization that offshore aquaculture development is a solution to shortfalls in global fisheries production has taken firm hold. National interest in allowing commercial aquaculture in state and federal marine waters continues to build, justified in part by the urgent need to increase domestically produced seafood supplies and foster less reliance on foreign imports. Local industry participants hope the new and more intense focus will be supported with new federal research funding and a new local initiative, the Pacific Marine Aquaculture Center, is being organized to address this opportunity. With the solid track record by the State, the University of Hawaii, and the private research and farming communities, Hawaii is well positioned to take advantage of this rapidly emerging sector of the U.S. aquaculture industry.

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